

prospecting has been going on to determine its extent and to locate its source in the bed-rock. The ore is mostly cassiterite, but stannite also occurs. Pebbles of slate containing small tin-bearing quartz veins have been found in the gravels, while elsewhere the ore has been found disseminated through more or less altered granitic dykes.

PRIZE SUBJECTS OF THE INDUSTRIAL SOCIETY OF MULHOUSE.

THE Industrial Society of Mulhouse has issued a programme of the prizes to be awarded by the society in 1905; excluding the subjects which are of a purely local or technical character, the following are the principal prizes open to competition to all nationalities:—

In the section of chemistry, medals of honour will be given for experimental investigations of the alizarine reds, of the colouring matter of raw cotton, of the transformation of cotton into oxycellulose, and of cochineal carmine; for the synthesis of the colouring matter of cochineal or of some other dye used in industry; and for the production of fast dyes of a specified nature. Several medals will also be awarded for studies of special mordants and for the synthesis of some naturally occurring substance. A sum of 500 francs to 1000 francs is to be allotted to the best compilation of densities of mineral and organic substances in the solid state and in cold saturated solution. Many practical chemical problems in the bleaching and dyeing of cotton, wool, and silk are also suggested as subjects for competition.

In the section of mechanical arts, a prize of 500 francs and a silver medal is offered for a new method of construction of buildings suitable for cotton spinning, wool combing, or calico printing. The following subjects will receive medals:—a new non-tubular type of boiler; an indicator of the total work done in a steam engine; a new system for heating steam boilers; various machines for combing, carding, and weaving the textile fibres; a comparative study of electric and gas lighting in factories; a system of automatic lighting by conductors of the second class.

The following subjects deal with natural history and agriculture:—a catalogue of the plants in the neighbourhood of Mulhouse, Thann, Altkirch, and Guebwiller; an account of the fauna of Alsace; a mineralogical or geological description of part of Alsace; a study of the plants or insects inimical to agriculture in the same province. A medal is also offered for an investigation of the character of Alsace in prehistoric times.

In the sections of commerce and statistics the subjects are:—a consideration of the questions of insurance against risks of transport and fire; the influence of taxation on industry; and the effect of trusts and like organisations on commerce.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Mr. J. J. Lister, F.R.S., of St. John's College, has been appointed demonstrator of comparative anatomy.

The Board of Geographical Studies has arranged for a course of instruction in geographical surveying, to be given by Mr. Hinks at the observatory.

The council of the Senate proposes an important scheme whereby the matriculation and senior local examinations of the Universities of London, Oxford, and Cambridge shall be mutually recognised. The object is to diminish the number of distinct examinations for which schoolmasters have to prepare their pupils. The proposed conditions are set forth in the *University Reporter* for October 11.

Mr. R. R. Webb, St. John's, Mr. G. H. A. Wilson, Clare, Mr. J. M. Dodds, Peterhouse, and Mr. E. W. Barnes, Trinity, will be the examiners for the mathematical tripos, part i., in 1905.

SIR ISAMBARD OWEN has been appointed principal of the Durham College of Science in place of the late Dr. Gurney.

DR. ARTURO MARCACCIO, of the University of Palermo, has been appointed professor of physiology in the University of Pavia.

DR. HERMANN KOSSEL, of the Imperial Board of Health at Berlin, has been appointed to the chair of hygiene at the University of Giessen in succession to Dr. Georg Gaffky.

THE first congregation to inaugurate the University of Leeds was held on October 6, and the honorary degrees announced in our issue of September 29 (p. 547) were conferred. The Chancellor of the university, Lord Ripon, presided.

WE learn from the *Athenaeum* that Dr. Hans Batterman, of the Berlin Observatory, has been appointed director of the observatory at Königsberg, and professor of astronomy at the University of Königsberg, in succession to Prof. Hermann Struve, lately appointed to the vacancy at Berlin caused by the retirement of Prof. Förster.

THE Board of Education has issued its "Syllabuses and Lists of Apparatus" applicable to schools and classes other than elementary from August 1, 1904, to July 31, 1905. A new subject, under the title "Elementary Science of Common Life (Chemistry)," number twenty-six, has been added to the list of branches of science in which the board holds examinations. The list of subjects in which no examinations are held, though the subjects are recognised by the Board, has been extended, and now includes many subjects introductory to more advanced work in technology.

THE anonymous gift of 1000l. to the University College of Bristol announced a few days ago is, it may be hoped, an indication that the work of this institution is being appreciated in Bristol and the surrounding district. In addition to the usual courses, appropriate and systematic instruction is given at the college in those branches of applied science which are most nearly connected with the arts and manufactures. We notice that the total number of individuals, excluding medical students, attending the college during the session 1903-4 was 1084, of whom 596 were day students.

THE new calendar of University College, London, that for the session 1904-5, gives full particulars of several interesting new developments in the work of the college. The university courses of study, especially those in economics, have been extended, and further arrangements have been made for post-graduate courses, lectures, and research—this post-graduate work is explained fully in ten pages of the calendar. The list of papers and other publications from the scientific departments of the college, since the Dean's report of last year, runs to eight full pages, and shows that the work now being accomplished in the college is of the same high order as in previous years.

It is reported that there is apparently a deficiency of about 2000l. for the annual working expenses of the Tata Research Institute, and on account of this the scheme for the institute is at a standstill. Referring to this, *Capitulum* remarks:—"The question now is whether for the sake of two or three thousand pounds India should go without a Research Institute. Is the object good or not? If it was not good, why did the Government of India promise to help it? If it is good, why should there be any stinginess on their part about it? Should a great Government refuse its support and countenance to a scheme, the expenditure on which will be repaid not only to the people of India, but also to the Government itself a hundredfold?"

THE buildings of the new technical college at Danzig were opened on October 6 in the presence of the German Emperor. The college, which has been established on a modern basis, is intended to develop the industries of West Prussia and of the city of Danzig. Shipbuilding is to receive special attention. In a speech which he made, the Emperor referred to the importance of technical education for the maintenance of Germany's position among the nations, and described the special characteristic of the German technical colleges as being their "comprehensive many-sidedness." It is, he continued, for this reason that these colleges constitute a scientific "Universitas" which may be compared justly with the old universities, and explains why the endeavour has been made to place the two kinds of institutions on an equal footing by bestowing upon the technical colleges the right to confer degrees. "May the new college," the Emperor concluded, "prosper and flourish to the glory of German learning, to the blessing of these old Prussian provinces, and to the honour of the German name!"

A RESOLUTION adopted by the manufacturers' section of the London Chamber of Commerce, and approved by the council of the chamber, was recently forwarded to the Board of Education together with a letter from the secretary of the chamber expressing the views of the manufacturers more explicitly. The resolution states that, in order to retain our industrial position and to introduce into this country such further industries as may be profitably developed, the manufacturers' section is of opinion that it is absolutely necessary to raise the standard, and, if possible, cheapen the cost of technical and higher technical education, and that representations should be made to the Board of Education in this sense. The letter to the Board of Education points out that up to the present time manufacturers in this country have not realised that there is a scientific aspect to every branch of manufacture, requiring study to attain the highest results, and that there is hardly an industry that would not benefit from the more general employment of specially qualified scientific assistants. At present such qualified assistants as are available are mostly foreigners, the letter continues, and there is urgent necessity for providing greater facilities for obtaining a thorough training in applied science in this country. There would seem to be urgent need for technical colleges of university type in connection with each industry, where students could have opportunities of carrying out specialised study and research work under competent teachers. The fees charged should not be greater than those charged by similar Continental institutions, and poorer students of ability should be assisted by a liberal system of scholarships. Mr. Morant, replying on behalf of the Board of Education, says the board is keenly alive to the importance of encouraging a better provision of higher technical education than at present exists, and will take every step in its power towards its promotion. But these efforts will be largely in vain unless British manufacturers give every encouragement in their power to promote the employment of students at home thoroughly trained for the needs in question. Mr. Morant rightly points out, with reference to the considerations submitted, that the want of properly qualified English assistants referred to may be attributed partly to the fact that the salaries offered are frequently too low to tempt natives of this country, partly to the shortsightedness of many English parents in refusing to continue their sons' education to a sufficiently advanced point, partly to the fact that there is no adequate provision at present in Great Britain for enabling persons to acquire the manipulative skill necessary in certain branches of industry, and partly also to the inadequate endowment and the insufficient encouragement of research.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 3.—M. Mascart in the chair.—A comparison of the expenditure of the flexor and extensor muscles of the forearm, applied, each group separately, to the production of the same continuous external work: A. **Chauveau**. The energy expended was measured by means of the respiratory coefficient. It was found that the external work effected by the flexor muscles of the forearm was less than that of the extensors, the proportion being about 0.4 for the former and 0.6 for the latter. This difference appears to be due exclusively to the less favourable conditions under which the extensor muscles work.—On the loss of electricity in air in the neighbourhood of thermal springs: A. B. **Chauveau**. In the thermal springs at Cauterets, the radio-activity of the air near the spring was clearly marked, the loss observed in the neighbourhood of the reservoir being three times as fast as in the open air.—The colorations produced by the Becquerel rays; its application to crystallography and to the calorimetric determination of radio-activity: C. J. **Salomonsen** and G. **Dreyer**. The coloration produced by radium on certain crystals demonstrates the zonal structure of the crystal, and thus throws light upon the manner in which it has been built up. In the case of quartz, this zonal structure has not hitherto been demonstrated.—On a vacuum effect produced by a waterspout: Léon **Pigeon**.—On actinium: A. **Debierne**. The substance previously described by the author under the name of actinium pre-

sents many similarities with the emanum of Giesel. The opportunity has recently arisen of directly comparing the two substances, and the observations of M. and Madame Curie, M. Giesel, and the author on the characteristic phenomena of phosphorescence provoked by the two products shows that they are identical. The name emanum should therefore be dropped in favour of the earlier actinium.—The properties and constitution of the molybdenum steels: Léon **Guillet**. The series of steels studied contained only 0.2 per cent. of carbon, with molybdenum increasing from 0 per cent. to 15 per cent. A second series contained about 0.85 per cent. of carbon. In small quantity, molybdenum increases the breaking load without causing extra fragility. The general properties of the molybdenum steels resemble those of tungsten steels, but four times as much molybdenum as tungsten is required to produce the same results.—A thermochemical comparison between rosanilines and leucanilines: Jules **Schmidlin**.—On the morphology of the Chetoptera: Ch. **Gravier**.—The archaic form of the Thecosome Pteropods: Paul **Pelseneer**.—On the structure of the muscles of *Anomia ephippium*: F. **Marceau**.—On acarophytism in Monocotyledons: E. **de Wildman**.—Semeiology of the prostatic secretion: A. **Guépin**.—On a new treatment of seeds: E. **Bréal** and E. **Giustiniani**.

NEW SOUTH WALES.

Linnean Society, August 31.—Dr. T. Storie Dixson, president, in the chair.—Revision of the Australian species of Bolboceras (Coleoptera, fam. Scarabæidæ), with descriptions of new species: Rev. T. **Blackburn**.—Studies in Australian entomology, No. 14, new species of geodaphagous Coleoptera from Queensland and North-West Australia: T. G. **Sloane**. Three additions to the Cicindelidæ and five to the Carabidæ are proposed as new.—The botany of Funafuti, Ellice group: J. H. **Maiden**. The author gives a list, with critical notes, of thirty-eight dicotyledons, eleven monocotyledons, five vascular cryptogams, and one lichen. All the species are more or less widely distributed in the Pacific Islands as denizens of other coral islands or of the coastal tracts of the larger islands.

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